

Patent Application of

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For

TITLE: UNIVERSAL LAPTOP CASE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of Provisional Patent Application Ser. Nr. 60/390,888. Date 2002 June 25.

BACKGROUND--FIELD OF INVENTION

The invention is an expandable universal fitting enclosure for peripherals of standardized computers and laptop components.

BACKGROUND -- DESCRIPTION OF PRIOR ART

One of the last shortcomings of the first portable computer cases since the late 70's is the lack of interchangeable parts. Originally, the shortcoming of portable computer cases were weight, power, and non-interchangeable parts.

Thereafter, inventors created several types of enclosure chassis units for flexibility and changeable modules to accomodate packaging. U.S. Patent 6,206,480 B1 to Thompson discloses a dual or single case mobility, computing and communication system with rapid mobility for usage in the field, consisting of a component mounting mechanism, a mobile computer and peripheral data switching micro-network, an enclosed modular peripheral power system, and a plug-in modular component card system. This system is not versatile enough and is limited with regard to size for expansion.

U. S. Patent 5552957 to Brown is primarily a dual case solution with an option for a single cause configuration. He has an invention to provide a packaging structure for a portable computing system. However, this system is not user friendly.

Patent 4216522 to Slagel has an apparatus, permitting a user of an apparatus to plug a selected integrated circuit, mounted in a standard dual-inline package, into a socket in some apparatus or by permitting the end user to plug an interchangeable printed socket in the apparatus. This is a clear-cut way to insert a circuit into an electronic device, but does not allow for modern computer peripherals.

Patent 3925710 to Ebert invention relates to electronic equipment packaging, and more particularly, to a standard, general purpose package that offers a wide degree of flexibility in interfacing a variety of existing and/or new electronic equipment without requiring a redesign of the package for each different application. This invention to be versatile for electronics, but not laptop computers.

Patent 5,936,380 to Parrish, an invention that relates generally to the use of power from solar cells in a connection with laptop, portable, and/or notebook computers. More particularly, the present invention relates to the manner in which solar cells can be used effectively in the electrical power system

of such a computer. This design is effective in recapturing wasted light, but offers little in capturing light around the outside of the case.

Des.430118 to Huriki et al. The portable computer is hearty designed, but has limited expansion. This unit is limited to overall size and expansion.

SUMMARY

The objective of this invention is to provide an expandable, standardized, do-it-yourself, user-friendly computer case for laptops, notebooks, and tablets for multiple computer units in one case. It is also an objective of the present invention to provide such a device that is of simple, inexpensive construction. Another objective is to provide such a device in lightweight form that can be assembled and dis-assembled quickly, and is easy to transport.

A further object is to provide a universal fitting, physically expandable case that can hold one or more motherboards with knockout panels and supporting peripherals. The two units can operate separately or in a network with two to four multi-tasking systems on the two or more units.

Another principal object is the power feather prolonging the operational life of a battery power. Solar cells are incorporated onto the back of the computer case's display screen of a notebook/laptop computer to provide power to components and charging powering and/or regulation of a battery used for a power source.

OBJECTS AND ADVANTAGES

Universal Laptop Case, unlike many, can be used with most computer's present designs, but is a proprietary computer case only for its system. The Universal Laptop Case will fit all systems and create new markets to use as multiple-based computers, instruments, test analysis systems and equipment. This system provides:

- (a) a color enclosure that will be changeable.
- (b) an enclosure for a rapid change and mounting different components.
- (c) an enclosure which is both flexible and physically changeable.
- (d) an enclosure with several motherboards simultaneously and operating systems.
- (e) power and power saving features, using solar panels and battery regeneration.
- (f) three (3) main detachable units, which can be reconfigured into a tablet or notebook.
- (g) a multi-tasking main frame network device, a multi-integrated system, utilizing virtual equipment based computers, and dedicated controller board applications.

Further objects and advantages are to provide a closure, which can be used easily and conveniently. The bottom will have a handle to carry the entire case and the main overall horizontal parts. The three parts are the Top (outer section), Middle (center inner section), and the Body (outer

section). The body shape can vary, but it will be mostly common rectangular shaped. There will be an elbow-joint to keep the top from opening too wide.

The top is a slim, narrow, lid on the upper half of the case or body. On the back and outer part of the lid is a solar cell panel. And, on the inner-part of the lid is the display screen with a camera, microphone, LDC, and light indicator. This lid is attached to a removable hinge that allows straight or bent configuration for a tablet or notebook. The lid contains a special plug that fits into a socket of the body of the case. These hinges are mounted to the lower back. Also, the case will have knockout panels on the outside of the base for expansion component placement.

The next section is the middle, which also has removable hinges on the backside. This section houses possibly, a rectangular section for mouse pads, speakers, light indicators, keyboards, LDC screen, and the remote radio section. This section, also, will have batteries for remote access power. There will, also, be a controller circuit in this section.

The last part is the bottom section, which, also, has removable hinges. It is the part that houses the motherboards, and peripherals. This section has expandable sections, which are on the long ends of this possible rectangular base, are detachable, sliding, heads, which physically expand the case for additional space. Each can slide seven inches to increase the case. The sliding part will have walls on the bottom and top that fits inside the main rectangle. There will be metal levers shaped like an "L" that will fit into a hole to stop parts from moving between where the two parts meet. There will be a wall with holes to run connections together. The top part will have a cover that covers the peripherals when separated. This cover can be moved back and forth by sliding it into grooves for access. In the very bottom of this section is the mounting board. The case will have knockout panels on the outside of the base for expansion component placement. On the inside of the main case, there will be a board in the bottom that will be fastened down by screws. This board is where the electronics and card will be connected. There are many holes to position it any place. These connections will use a push down button fastener and will release the components. Some cards will plug into the inner side of the bottom case.

The physical, expandable laptops literally transform into a hybrid customizing case. The case is in three main parts: the top, upper lid, the middle, inner cover, and bottom housing. This removable upper lid houses the display screen on the inside and the solar cells on the back of the lid. The next section is the slim, narrow, middle, inner cover that holds the speakers, mouse pads, keyboards, LDC readout, and small display screen, and also, it is detachable from the top or bottom, forming a configuring case. The bottom of the case has the physical, drawer-like, expandable, slideable ends to the right and left of the front of the case and knockout panels, which will be for mounting the face of the peripherals. A unique part of the bottom will be the movable, sliding rails, snap-in components mounting to the removable mounting board, which will be screwed in to be secured.

Reference Numerals In Drawings

| | | | |
|---|----------------|-----|-----------------------------------------------------------|
| 1 | Handle | | |
| 2 | Mice | 33. | Outer Facing Cover for Sliding Mounting Unit. |
| 3 | Speakers | 34. | Outside Housing of the Bubbled Edge of Rear Display Unit. |
| 4 | Right Keyboard | 35. | Solar Panel (Center & Rear View) |

| | | | |
|----|---------------------------------------------------|-----|------------------------------------|
| 5 | Left Keyboard | 36. | Inner Bubbled Edge |
| 6 | Knockout Panels | 37. | Lighting Indicators |
| 7 | Right Display Screen | 38. | Power Light Indicator |
| 8 | Left Light Indicators | 39. | Right Side of Display Screen |
| 9 | Left Display Screen | 40. | Left Side of Display Screen |
| 10 | Right Light Indicator | 41. | Retractable Feet |
| 11 | Plug-In Play Slots (right) | 42. | Hinges |
| 12 | Plug-In Play Slots (left) | 43. | Mounted Motherboards |
| 13 | Plug-In Play Slots (left, right, & rear) | 44. | MCICIA Card Slot |
| 14 | Plug-In Play Slots (rear) | 45. | Left Expansion Drawer |
| 15 | Mounting Board | 46. | Right Expansion Drawer |
| 16 | Lifting Lid | 47. | Retracting Handle (Side View) |
| 17 | Top Lid (side view) | 48. | Retracting Handle (Top View) |
| 18 | Back Housing to Display Screen | 49. | Retracting Handle (Alternate View) |
| 19 | Metal Frame | 50. | Access Flap |
| 20 | Mounting Plate & Screws for Rubber Restrainer | | |
| 21 | Front Cover for Rubber Display | 51. | Ventilation Holes |
| 22 | Perforated Section for Front Rubber Cover Display | | |
| 23 | Holding Screws | 52. | Bottom Mounting Screws |
| 24 | Bracket Mount | 53. | Back View of Middle Section |
| 25 | Vertical Arm for Mount | 54. | Antenna |
| 26 | Holding Screws | 55. | Plug-In Connection & Flap |
| 27 | Horizontal Tract | 56. | Ventilation Fan |
| 28 | Bracket Mount | 57. | Back Section of Case |
| 29 | Holding Screw | 58. | Mounting Board |
| 30 | Area to Housing Display Screen | 59. | Mounting Screw |
| 31 | Sliding Mounting Unit (Rear Cover) | 60. | Mounting Holes on Board |

32 Perforated Section for Sliding
Mounting Unit

- 61. Close-Up View of Mounting
Holes on Board
- 62. Close-Up View of Mounting
Holes
- 63. Locking Apparatus for
Expandable Drawer
- 64. Plug-In Play Slots

DESCRIPTION - FIGS 1-64 - PREFERRED EMBODIMENT

A preferred embodiment of the case of the present invention is illustrated in Figures 1 through 17. These sections of the case are two parts of a three-part system. The top part is the solar panel on one side and the display screen on the other. The outside housing (34) of the top part has solar panels (35) center of solar panel (rear view). There is a raised, bubbled edge (36) that protects the solar panel from damage. Also, embedded in the edge is a power light indicator (38). On the opposite side of the solar panel, there is a low profile edge that fits tightly, but protects the display screen when disconnected from the middle. Figure 2 shows all three sections, the top, middle, and bottom. On Figure 17, at the bottom of the top section are the hinges to the case (42). These pieces are held together with interlocking hinges (42). These hinges will allow each section of the case to open and close. Also, they will allow each unit to be disconnected independently for convenience and accessibility. These hinges will allow for the interchangeable position for the display screen so it may be utilized as a tablet. The next section is the flap (50) for accessibility to the plug-in cable connections when not in use and leave a streamline view of the case.

At the bottom of the display unit are retractable feet (41). The feet will have a spring on the center, circular piece to help pull them to the unit. The outer part of the feet will have an angular part that will fit on the bottom to hold the feet in place.

On the inner low profile edge are the controls to the display screen and light indicators (37), which set slightly lower than the protective edge. The display screen can operate as a whole or can be broken up into two single responding screens, which can operate independently (39 & 40).

There are two types of mountings for the display screen: one, the rubber mounting unit, and two, the metal mounting unit. On the outside of the back section of the solar panel is where the mounting frame is located. Next to the outer back section (18) is a rubber piece (19) held by a metal frame with metal screws to actually hold the display screen in place. And, on the display side is the face covering (21) to the display screen, which is perforated (22) to accommodate the display screen size. The other CDL Mounting Unit (31) contains a frame that moves horizontally on a track (27) and is tightened by screws (23, 26, & 29) to hold the display screen in place. There are also vertical pieces (25) that are held in place by brackets (22 & 28). There is a face cover (33) with knockout sections (32) to house the display screen (30).

The middle section has a handle (1) that retracts into the case. Figures 47, 48, & 49 are different views of the handle. There is a space to the left and right of the handle, which has knockout panels (6).

The top is the area in which most of the input devices are mounted. The top can be lifted up to have access to the inside (16). Underneath the top, at the bottom of the case, one or more boards can be mounted (43). Also, there is an area where one or more daughterboards or one or more expansion slots (11, 12, 13, & 14) can be placed. The case, from the bottom, has two mice (2) to use in controlling the display unit. Also, there are two speakers (3) at the bottom, connected to the bottom lid.

The next section is the keyboard (4 & 5). The keyboard (4) on the right of the console will be stationary. The keyboard on the left (5) will be removable and will work by RF Frequency. The left keyboard will have a built on mouse or tracker ball. The next part on the console will be the LDC Display (7 & 9) with indicator lights (8 & 10). The inside of the middle section is where the motherboards for the units will be housed and the MCICIA Cards (44) will be placed. This unit will house circuit boards and some small batteries, and plug-in-place slots inside (11, 12, 13, & 14). There is a single profile indicating how the speakers and mice will set on the top panel (17). There is one other section that is ventilated, the middle (53) section. This section will have a small fan to pull heat from the electronic boards and small ventilation holes in front so air can circulate. In the back where this ventilation fan is located (56), there will be an opening entrance with a door that closes to hide the plug-in connections (55). One other part, which is the antenna (54) is connected on the back. Figure 57 is a streamline section of the rear of the case where it fits together.

The bottom section is a box in which the panels can be knocked out. It has slots for plug and play units. This is where two peripherals can be placed. And, it has two end pieces (45 & 46) to pull out for extra space to add more components. The next section on the bottom deals with ventilation (51). There are holes in the bottom of the case to keep the components cool (52). Also, there can be mounting for a fan to assist in cooling. There is a locking apparatus to set the distance on the end pieces (63). There is one other section that is ventilated, the bottom unit. This section will have a small fan to pull heat from the electronic boards and small ventilation holes in front so air can circulate. In the back where this ventilation fan is located (64), there will be an opening entrance with a door that closes to hide the plug-in connection.

In order to hold everything in place, screws can be placed from the bottom (48). These screws will hold mostly the mounting board (15), but can hold other components directly. The board that sets in the bottom has holes that have grooves. A notch screw fits into the holes and twists to lock them. These are shown in Figures 60, 61, & 62. Figures 58 & 59 will give you a better concept of the mounting board and screw.

ADVANTAGES

From the description above, a number of advantages of my Universal Laptop Case becomes evident:

- (a) This will provide interchangeable plastic enclosure such as transparent and multi-colored ones.
- (b) There will be no need to constantly buy new computer units every three to five years, just upgrade the internal motherboards, daughterboards, and software.
- (c) The interchangeable plug and play cards will make the case into a special designated piece of equipment and not just a traditional computer.
- (d) This will allow connection of several motherboards and daughterboards to operate on different aspects of a given task simultaneously.
- (e) The computer case will truly allow itself to be multi-user from remote locations.

- (f) This case will operate as a mini-main frame.
- (g) This unit will act as a dedicated appliance by utilizing the daughterboards and networking other components in the case.
- (h) It will have a solar cell for power management features and power enhancement to offset power consumption.
- (i) It will be able to expand for excessive component integration and configuration, depending on the configuration and can be separated into three main part: the display, the keyboard, the keyboard viewing section, and the bottom enclosure containing the peripherals.
- (j) An internal, flexible, mounting system will allow many physical configurations for motherboard components and electronic controller circuits.
- (k) This case will be lightweight, portable, and rugged.

CONCLUSION, RAMIFICATIONS, AND SCOPE

Accordingly, the reader will see that this case can enable the user to create many different computer configurations, use several operating systems' test equipment, and dedicated controller cards for more than one user at the same time. This case will be a user-friendly case to create desired needed functions.

The case permits the use of several pieces of equipment with probes, lead wires, and desired functional attachments.

The case permits an interaction with several pieces of test equipment software.

The case permits the expansion of a wireless system of several computer and test equipment in the same case.

The case permits physical expansion to add many possible configurations of components.

The case permits power enhancement with solar cells.

Although the description above contains many specifics these should not be construed as limiting the scope of the invention, but merely providing illustrations of some of the presently preferred embodiments of this invention. For example, the case can have other shapes, such as circular, oval, trapezoidal, triangular, cubicle, etc.

Thus, the scope of the invention should be determined by the appended claims and legal equivalents, rather than by the example given.